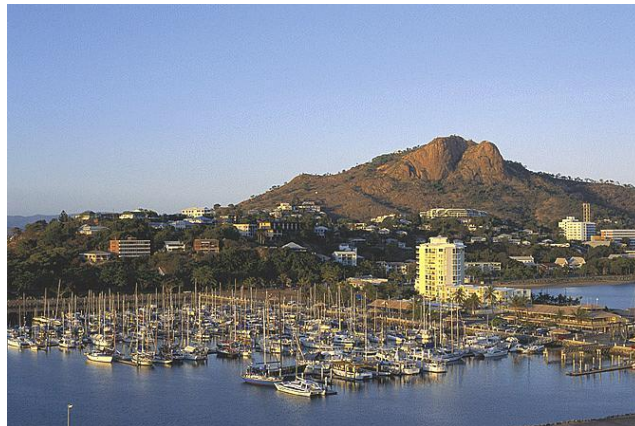




# IPMEN'08

**Sustaining the Pacific: Learning from Elders, Listening to Youth**

**October 16<sup>th</sup> – 19<sup>th</sup> 2008. Townsville Australia**



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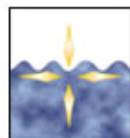
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## IPMEN'08 SUPPORTERS



Program Spotlight

## Comments from Network Chair

To the Participants of the International Pacific Marine Educators Conference I want to take this great opportunity to first congratulate the IPMEN Conference Planning committee for all their great effort and hard work over the last 21 months to ensure we accomplished the dream of hosting the next International Pacific Marine Educators Conference (IPMEC). It is also a heartfelt privilege and honor to extend a warm welcome to all the participants of this IPMEN conference. Congratulations to you all! I feel it is safe for me to add that your commitment in protecting our natural resources for our children and all future generations has brought you here to share all your lessons learned with all your peers from around the Pacific. All the experience you have gathered through environmental education and natural resource conservation will contribute to new and innovative ways to share our passion with our communities.

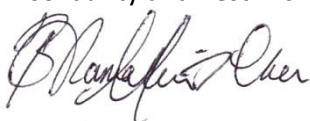
The memory of receiving the invitation to deliver one of the keynote talks in the last IPMEC 2007 in Honolulu is still fresh in my mind. My topic was "Climate Change Impacts on Natural Resources and Rights in the Pacific." After my speech, I stayed and assisted in facilitating some parts of the discussion. During the last day of the conference, I was approached to become the Chair of IPMEN. I was told that I would be facilitating the discussions, and be the face of the IPMEN. I was able to convey the pressing issue of climate change in the Pacific through my personal experiences in Micronesia, and knew that I would be able to contribute to IPMEN as chair of the committee and I am grateful for the opportunity. I know the committee wants to raise the profile of vulnerable communities in the Pacific to share our stories with the rest of the world. I am very thankful for that, although I know that coming from a place that is not well equipped with technology will present some challenges in chairing the committee of IPMEN.

In the Pacific, natural resource is life and culture to us. And because these natural resources are under the threat of climate change as well as other unsustainable development activities, we are among the most vulnerable populations in the world. I am very much concerned about preserving our natural heritage for our sustainable future and, coming from a low lying island, climate change is an issue very close to my heart. This is why I was excited about being with the IPMEN. While I know that change is inevitable, and mitigation activities may not be successful, we can apply adaptation methods. The most affordable adaptation measures we can do is doing to conserve and protect our unique natural resources from ridge to reef to build our resilience or reduce our vulnerability to the impacts of global climate change. This is what IPMEN is all about - it provides us with the means of networking with each other and with the rest of the world. Together, we can work towards effective solutions to these environmental problems and best approaches to manage our natural resources in a sustainable manner.

On behalf of the IPMEN committee, we hope that you will find this conference useful and we are also excited to learn from you and about your contributions to the network. Again, congratulations for your selection and we look forward to building working relationships with you to ensure this network moves forward to become a great teaching tool in natural resource conservation for all of us in the Pacific and the Planet.

I salute all your dedication in protecting our ocean and the natural resources-"gifts from our ancestors"- for the future generations.

In solidarity and Best wishes to one and all,



Ben M. Namakin Chair -International Pacific Marine Educators Network (IPMEN)

## Welcome from Conference co-chairs

### *Harry Breidahl, Nautilus Educational*

As we move towards the IPMEN'08 conference at a frightening pace I've been asked to take a brief break from the hectic task of preparing for the conference and put my somewhat overtaxed (and old) mind to penning a few sage opening remarks for conference delegates. I guess I'm doing this from the vantage point of over 30 years of hindsight and with a smattering of somewhat optimistic foresight thrown in for good measure.

To highlight this two way view, I believe that the IPMEN'08 conference theme of "Sustaining the Pacific: Learning from Elders, Listening to Youth" says a great deal about where we have come from and where we should be headed.



Without going into crusty old stories of the good (or bad) old days, I can say that over the past 30 years, environmental education in my nation, Australia, has evolved to a point where there is now a clear and strong emphasis on education for sustainability. That emphasis is highlighted in the first part of our IPMEN'08 theme "Sustaining the Pacific". I therefore ask that you make education for sustainability a clear focus of your time in Townsville and beyond. But wait, just like a K-tel advertisement, there is more. Embedded in that opening component of the IPMEN'08 theme is a slightly cryptic emphasis on the Pacific (Ocean). It is on that hidden word (ocean) that you will also need to focus.

As a marine environmental educator I have often felt like a poorer cousin to my terrestrial environmental education colleagues. Again, there is no need to elaborate here, other than to say that despite occupying 70% of the surface of our planet, the ocean is often neglected in so many ways and in so many fields. Even in the delivery of environmental education it is difficult to find exceptions to this oversight. As a result, one of your clear challenges is to address this oversight and link ocean themes with all components of education for sustainability.

The second part of the IPMEN'08 theme also represents part of our history and sets clear guidelines for the way forward. My first involvement in the somewhat meandering path that has lead us all to Townsville in 2008 occurred eight years ago in Longbeach, California. I was leading a small group of Australian MESA members on a study tour of Californian marine education facilities and to the 2000 NMEA conference. At that conference I sat down with a group of NMEA members and started planning for a Pacific-wide marine educators meeting to be held in conjunction with the NMEA 2005 conference scheduled for the Hawaiian island of Maui.

Due to the voluntary effort of a few key Australian and USA marine educators this seed of an idea resulted in the successful One Ocean Marine Forum (OOMF) held in Maui in July 2005. Although OOMF was a small meeting it was here that our horizons expanded considerably to embrace the "Learning from Elders, Listening to Youth" component of the IPMEN'08 theme. For me, a scientist and educator from a developed nation, this was a stunning and welcome revelation. For the first time in my life I was able to hear from elders with traditional knowledge of ocean systems. This occurred not only in Hawaii but in Fiji as I worked on the follow-up conference to OOMF. Sadly, as a result of the 2006 coup in Fiji, this meeting, called IPMEC, was moved from Fiji to Hawaii in January 2007. Nevertheless, IPMEC was also a success and lead to the formation of IPMEN and further paved our path to Townsville.

Having been a teacher for much of my life it might seem that my mind was already open to the concept of “Listening to Youth”. In part it certainly was. However, another outcome of OOMF was my association with IPMEN’08 co-convenor, Andrew Vance. It was during our time in Hawaii in 2005 that Andrew became excited about the first International Youth Coastal Conference (IYCC) that was planned for our home Australian state, Victoria, in October 2006. As often happens with passionate people I suddenly found myself working with Andrew and fully involved in planning for and the delivery of IYCC 2006. It was through this work with the organizers of IYCC 2006 and via exposure to the “kids teaching kids” concept that I fully realized just how insightful and powerful young voices can be. It now seems so logical because it is the young people of today to whom we entrust the future of our ocean planet.

So here we are in Townsville. We have reached this point by relying on the blood sweat and tears of a very few passionate volunteers, even fewer committed organizations and a relatively small amount of hard won but highly valued sponsorship. As one of the key volunteers I owe my wife Jane a huge debt because the last 12 months of my life has been totally consumed by planning for IPMEN’08. As a result of this experience, my very final message to all IPMEN’08 delegates, and to IYCC 2008 delegates as well, is deliberately blunt and direct.

As stated above, the path to this conference has relied far too heavily on volunteer effort and the good will of a few supporting organizations. Without meaning to belittle my own efforts or the selfless contribution of others, this is not the way to move forward and build an effective Pacific-wide network of marine educators. I’ve more than reached my use-by date and I’m way past the end of my time as a passionate “blood sweat and tears” volunteer so my challenge to the rest of you, young and old, is to find smarter ways to build and sustain IPMEN. By all means, maintain the passion and, yes, give of your time freely but please do this as much with your heads as with your hearts.

Harry Breidahl,



“so long and thanks for all the fish (and all other marine life)”

### *Andrew Vance, Melbourne Girls' College*

On behalf of the IPMEN'08 committee I welcome you to Australia and Townsville and hope that you come willing to contribute your energy and enthusiasm to IPMEN and take away new ideas, friendships and inspiration. We have certainly drawn a wide variety of delegates from across the Pacific, covering a range of fields including Environmental Law, Tourism, Fisheries Management, Primary, to Tertiary Education, Community Development and Education, Wildlife Protection, Marine Park Authorities and of course, Marine Science. This diversity has proved to be both a strength and weakness to the network; One of the aims of IPMEN is to draw



together existing organisations to promote and strengthen Ocean education and sustainability across the Pacific. As a member of the Conference organising Committee we consistently found ourselves falling outside the umbrella of different funding bodies, is IPMEN'08 a conference about Conservation? Is it more about Education or science, looking at traditional knowledge or developing partnerships between countries, communities and cultures? In reality, it is about all those things and more. It is only by working together in cross-disciplinary teams, that we will ever achieve our goals of creating a sustainable Pacific. I would like to take this opportunity to thank all our sponsors, and especially the David and Lucille Packard Foundation for their generous support of this conference. I hope that this is just the beginning of a long lasting relationship with IPMEN.

During your time at the conference I hope you are able to take time to reflect on your own personal ecological footprint. As an environmentalist, marine educator and school teacher I often find myself reflecting on the costs and benefits of delivering learning activities. Next week I will be taking 8 Melbourne school students to the International Youth Coastal Conference in this very place. I have discussed with these students, who range in age from 13 to 17 years, what they hope to achieve from attending the conference, but also what sort of impact our travel, including the transport that we use, the extra resources that we consume while living away from home and the actual resources that were used to run the conference (however closely audited) will have. Does the environmental benefit of running the conference outweigh the costs?

Flying more than 60 individuals from across the Pacific will have direct negative environmental impacts in terms of climate change. However this must be considered against the hugely positive effect of passionate people coming together, "learning from elders, listening to youth" and working towards achieving common goals. At this conference delegates will inspire one another to push sustainability to a new level. It is for this reason that I urge all of you to come to day three of our program fully committed to building this network and investing as much energy as you can – Think of it as your own carbon offset.

The organising committee has worked hard to ensure that the environmental impact of hosting this conference is not only minimal, but actually net positive. Recycled paper has been used to print conference materials, local food has been sourced for catering, air conditioning has been set conservatively and this program has been provided electronically rather than printed at all. In an effort to curb unnecessary conference-consumerism, we have invited delegates to BYO conference satchel and even bring an old conference satchel to swap with a delegate!

In fact, 100% of the carbon emissions have been calculated and offset using Australian company *Climate Positive*, which will plant native trees on our behalf to offset the carbon produced from IPMEN'08. Initially we tried to offset our emissions through a marine environmental project, with

the idea that we could pay to propagate certain coral species, hence rebuilding reefs weakened by global warming, whilst simultaneously slowing its effects. Unfortunately, our enthusiasm and ideas were ahead of the science and we discovered that coral reefs are net CO<sub>2</sub> producers! Despite the general positive environmental effects of restoring reefs, CO<sub>2</sub> sequestration is not possible using coral at this stage.

I strongly urge all of you to take personal action in this regard and especially, if you have travelled far, make the most of your time here in Australia, consume Australian food and culture, visit the Great Barrier Reef, and take a walk through the Tropical Rainforests of the Townsville hinterland because human induced climate change, caused largely by our unsustainable use of fossil fuels, will cause the death of these and many other natural wonders of the World. If you can, pay your airline or contact Climate Positive to offset your travel to IPMEN, but most importantly don't come back. Well, don't come back too soon! As environmental educators, we must practice what we preach - be leader and reflect on your own impact while you're teachers other about theirs.

I would like to finish by thanking the IPMEN'08 conference committee who have worked so cohesively over the last 20 months. This conference is largely about environmental sustainability. We need to reflect on our current practices and develop ways to sustain ourselves as well as the environment. These people, led by Harry Bredahl, have worked incredibly hard to bring this conference together. We need you all to keep it going.

Andrew Vance



## From our sponsors

### Gold & Scholarship Sponsor, the David and Lucile Packard Foundation

Bernd Cordes

The David and Lucile Packard Foundation was created in 1964 by David Packard (1912–1996), the co-founder of the Hewlett-Packard Company, and Lucile Salter Packard (1914–1987). Throughout their lives in business and philanthropy, the Packards sought to use private funds for the public good, giving back to a society which enabled them to prosper.

The Foundation's support for IPMEN '08 reflects its shared and enduring interest in our oceans' health and in our children's education and well-being. Like all of you in attendance, we hope IPMEN '08 ultimately results in students and educators with a closer connection to and understanding of our oceans, and who are even more inspired to explore and care for them.



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## Silver Sponsor, NOAA

Stephen Hammond

Acting Director, Ocean Exploration Program  
Director, Pacific Marine Environmental Laboratory



September 30, 2008

Dear Organizers and Participants of the International Pacific Marine Educators Conference 2008:

On behalf of the National Oceanic and Atmospheric Administration's (NOAA's) Ocean Exploration Program, I would like to welcome you to the tropical Australian city of Townsville where you will be networking with marine educators worldwide from October 16th through 21st during the International Pacific Marine Educators Conference 2008. Since its inception in 2005 in Hawaii, the International Pacific Marine Educators Network (IPMEN) has continued to expand its reach and share the ocean science literacy dialogue with ocean scientists, ocean science educators, citizens and decision-makers around the world. The 2008 Conference theme of "Sustaining the Pacific: Learning from Elders, Listening to Youth" continues to expand IPMEN's reach by including voices not often heard – those of elders with rich traditional knowledge and those of our youth with fresh new insight.

As the Acting Director of NOAA's Ocean Exploration Program, and by virtue of having spent many months conducting research in the Fijian Islands as well as having lived in Hawai'i for 14 years, I know first-hand how important it is to ensure ocean science literacy of the unique and diverse environments cradled in the Pacific Ocean. From subjects as diverse as the newly-recognized roles of seamounts as centers of biological diversity in the deep sea, to the impacts of active underwater volcanoes on the ability of the ocean to sustain life, to habitats associated with precious deep-sea corals, and to the effects of ocean acidification on shallow and deep-sea coral reefs, we are only just beginning to understand how connected and essential the ocean is to the well being, and in fact the survival, of all life on Earth. The Pacific Ocean is one of the most unexplored areas on Earth, and enhancing ocean literacy about what is known – and what is unknown – about this large area of our global ocean is an important part of your conversations over the next several days.

Just last month, the NOAA commissioned the first Federal vessel dedicated solely to ocean exploration – the NOAA Ship Okeanos Explorer. The ship has unsurpassed scientific and technological capabilities and assets that will fundamentally change the way ocean exploration is conducted by NOAA and many others in this country. Additionally, telepresence capabilities will enable scientists and educators ashore to participate in real-time discoveries as they are made at sea on board the Okeanos Explorer, increasing our scientific understanding and ocean literacy of our little-known ocean planet. As educators, you will have a tremendous opportunity to virtually participate in these discoveries once the maiden voyage is launched in 2009. For now, working with the National Marine Sanctuaries Foundation, we are making it possible for those of you who cannot attend the IPMEN 2008 Conference in Australia to participate in the conference virtually via telepresence, so as to enable the broadest level of participation in this international dialog on ocean science literacy. I wish you a most successful conference.

With kind regards,



Stephen R. Hammond, Ph.D.

## Silver Sponsor, Western Pacific Regional Fishery Management Council

**Kitty Simonds**



In the summer of 2005, the Western Pacific Regional Fishery Management Council participated in the One Ocean Marine Forum (OOMF) on Maui. The Council participated in the event as it has had a strong commitment the past 30 years to education and international cooperation as a means of ensuring the health of our ocean resources and the communities who depend upon them.

The Council's jurisdiction encompasses the US Pacific islands of American Samoa, Guam, the Northern Mariana Islands, Hawaii and eight remote island areas. The communities on these islands have for millennia depended upon the ocean for physical and spiritual nourishment. Moreover, the pelagic fisheries managed by the Council involve highly migratory species, such as tuna, billfish, turtles, seabirds and marine mammals. It will take the efforts of all of the Pacific countries and territories to ensure that our children and our children's children are able to enjoy these species as we have, especially given the mounting impacts of global warming and ocean acidification. More than ever before, our efforts must be cooperative, immediate and significant.

Many exciting ideas were expressed during OOMF. However, it became clear that for those ideas to get traction the participants needed to come together in a way that would involve other people and empower them all toward action. Therefore, at the Forum, the Council proposed one of the six action plans to move the OOMF initiative forward. We proposed and volunteered to take the lead on organizing an international conference of marine educators focused on the Pacific Ocean.

This conference became known as the International Pacific Marine Educators Conference (IPMEC). It was held in January 2007 and was designed to have one major outcome—the formation of a network of Pacific marine educators. We believed that this network could serve as a model for similar international marine educator networks in other oceans and that eventually these various networks could link into the global forum envisioned by OOMF.

The fact that we are gathered today at the International Pacific Marine Educators Network (IPMEN) 2008 conference with subsequent IPMEN conferences scheduled for Fiji in 2010 and an island off Chile in 2012 is proof that IPMEC was indeed successful.

Today, the task before you is to further develop the Network. A similar workshop was held on the last day of IPMEC 2007. Before you begin your work today, it might be worth noting some of the tasks that were identified during the 2007 workshop, the progress that has made to achieve them and some follow up work that this workshop might yet explore.

- Form an ad hoc organizing committee to begin forming the Network Committee. The committee should be heavily populated with Pacific Islanders, and the members should be teachers, cultural educators and people focused on educating communities and tourism sector. The organizing committee was formed at IPMEC 2007. The chair is a Pacific Islander, Ben Namakin. Among the other committee members are five Pacific islanders from Hawaii, Marshall Islands and Fiji. Several of the committee members are cultural and community educators. The workshop today might look at ways to update and activate this organizing committee. One of the stumbling blocks has been computer and internet accessibility. Capacity-building efforts in this regard may need to be explored.
- Compile and archive the IPMEC reports so the IPMEN organizing committee can use them. Following IPMEC 2007, the Council, the College of Exploration and the chair of the IPMEN organizing committee, gave a joint presentation on IPMEC at the NMEA 2007 conference in Portland, Maine. Several other IPMEC participants were at the NMEA conference, so they met to review and organize the IPMEC reports. A paper was developed that includes a process to move the organizing committee forward and a list of tasks for them to undertake. Some of these tasks have been completed. However, many of the tasks have not been pursued. The workshop participants today might find it worthwhile to review this document. Other resources available to the workshop and to

the organizing committee are the IPMEC proceedings, which have been published by the Western Pacific Regional Fishery Management Council as a 2008 issue of the NMEA journal, Current, as well as video streams of the entire 2007 IPMEC conference, which the College of Exploration has graciously provided on its website

- Develop a point of contact list for country representatives. Soon after IPMEC 2007, Nat Tuivavalaqi took on the task to chair the committee to establish points of contacts in each country and territory in the Pacific. Nat has since moved on, but his former colleague Manoj Nair has agreed to carry on where Nat left off. In Hawaii, the OCEANIA chapter of NMEA is poised to be the contact for the State and island contacts have been identified for each of the major islands in the Hawaii archipelago.
- Get website up and running where everyone can put their profiles, skills and interest for others to see; establish an electronic network or list serve so that everyone who participated is informed about the status of actions. Soon after IPMEC concluded, the IPMEC website was changed to the IPMEN website, where it has mostly served to promote the current 2008 IPMEN conference. In addition, Andrew Vance began an IPMEN group on Facebook, and about a half dozen IPMEC participants have kept in contact through it.

Besides noting tasks to do, the IPMEC 2007 workshop identified various potential indicators to measure the success of the Network. Here a few of them, and how we have measured up.

- If we have one or more conference and many of the same people continually show up and new people show up, that may be a measure of success. IPMEN is faring well based on this criteria. The current conference has 26 participants who also participated in IPMEC. In other words, over 25 percent of the IPMEC participants have made it to IPMEN. Moreover, approximately 60 participants who didn't participate in IPMEC are participating in IPMEN. Today we have not Australia, Canada, Cook Islands, Chile, Fiji, Hawaii, Japan, Marshall Islands, Mexico, New Caledonia, Northern Mariana Islands, Pohnpei, Samoa and the continental United States representatives, but also Indonesia, Kiribati, Norfolk Island, Vanuatu and West Papua.
- Future funding. Groundwork in 2007 to engage the Packard Foundation found fruition in 2008. Additionally, several of the 2007 funders renewed their commitment in 2008, including the NOAA Office of Ocean Exploration / National Marine Sanctuaries Foundation, the Western Pacific Regional Fishery Management Council, National Marine Educators Association, Nautilus Educational, College of Exploration and the Marine Educators Society of Australasia.
- Ocean literacy principles are used in all parts of the Pacific. This measurement of success has great potential. Several IPMEC participants have reported work to implement ocean literacy in their countries. For example, Luis Pinto reported that IPMEC 07 led to the organization of the First Ocean Literacy Fair in Chile, which included dissemination of the seven essential principles of Ocean Literacy. He adds that recently a local teaching community was created among middle school science teachers to investigate the inclusion of these Principles and the development of a basic curriculum that includes ocean sciences. Another report came from Tsuyoshi Sasaki of Japan, who said that from IPMEC he learned about Ocean Literacy in US and the importance of traditional knowledge in each country. After IPMEC, he successfully proposed to the president of the University of Tokyo the creation of new educational program about ocean literacy. The new Aquatic Marine Environmental Literacy program will be made available this October to all freshman University students.

Informal networking at IPMEC has also led to new initiatives for many participants. Barb Mayer of Hawaii reported that after IPMEC she tried to help ocean literacy by completing curriculum projects on tsunamis and on fishing in the Northwestern Hawaiian Islands. She also reports that her joint presentation at IPMEC on marine debris, together with the discussions with IPMEC participants, helped her to secure a consultancy to a marine debris curriculum for the University of Hawaii's School of Ocean and Earth Science and Technology.

The Council benefitted from IPMEC in several ways. The 2007 conference strengthened our acquaintanceship with Ziggy Livnat, so when Caribbean Islands called us concerned about

unsustainable taking of coral by tourists, we were able to direct them to Ziggy to develop a PSA for them. The information we learned at IPMEC on the state of traditional knowledge in the South Pacific islands resonated with what we were hearing from cultural practitioners in the US Pacific islands and prompted the Council to recommend and support a Traditional Knowledge Committee in the National Marine Educators Association.

In conclusion, I wish to leave with you a Hawaii metaphor for working together, which is being in the same canoe. Being in a canoe together is like being in a boat together, but it requires more coordination. Unless the paddlers coordinate their strokes, the canoe will not go straight. While a zigzagging journey may be fun, I think we all agree that work to ensure the health of the Pacific Ocean and its communities has some urgency to it. So I encourage you all to paddle the canoe straight. Or, as we say in Hawaii, “imua,” move forward.

Aloha and mahalo.

## Silver Sponsor MESA

**Angela Colliver (President)**



I write as President of the Marine Education Society of Australasia (MESA) to endorse the International Pacific Marine Educators Network 2008 conference and offer my support.

The Marine Education Society of Australasia (MESA) has been involved in the promotion of marine education on the international scene for many years and we can trace the beginnings of the International Pacific Marine Educators Network (IPMEN) back to February 1990 when John Tomkin, then president of MESA, led a group of 23 Australian marine educators on a four-week study tour of marine education facilities on the West Coast of the United States.

This study tour resulted in a number of long-time associations between members of MESA and the National Marine Educators Association (NMEA) in North America. Many subsequent cross-cultural visits exposed the challenges in both knowledge and resource sharing on the international scene.

More recently, a small group of MESA and NMEA members meeting at the NMEA 2000 conference in Longbeach, California, formed a plan to hold an international meeting of marine educators in conjunction with the scheduled NMEA 2005 conference in Hawaii. This first international meeting, the One Ocean Marine Forum (OOMF), succeeded in bringing together 27 marine educators from seven nations for two days in Hawaii at the Maui Community College in July 2005.

OOMF was, in turn, the stimulus for a second international meeting initially planned for Fiji in January 2007. Despite the need to move this conference to Hawaii because of a coup in Fiji, this conference, called the International Pacific Marine Educators Conference (IPMEC), was a great success. Approximately 100 marine educators from 18 nations and territories participating in person and by web-conference.

In partnership with NMEA colleagues, MESA members again are taking a leading role in planning for and delivery of IPMEC and are continuing this commitment to the development of IPMEN and the IPMEN'08 conference now being planned for Townsville, Australia in October 2008.

I therefore strongly endorse the IPMEN'08 conference, not only because of the intimate involvement of MESA members in this conference and because this conference is being held in Australia but also because the aims of this conference and of IPMEN mirror those of MESA.

## Silver Sponsor Nautilus Educational



It may seem strange that a small family company should be involved in sponsoring a conference such as IPMEN'08 but, nevertheless, it is true. Perhaps this sponsorship reflects the genuine difficulty that an organisation like IPMEN has in securing funding, especially in a nation like Australia. Nevertheless, we regard funds invested in IPMEN'08 as one way to give a little back for future generations.

Harry, Jane and Billy Breidahl

## Silver Sponsor University of South Pacific

Joeli Veitayaki



The main capacity building challenges in the Pacific include the identification of the training and education that are appropriate, the prioritisation and satisfaction of these needs, the compartmentalisation of training responsibilities and the reduction in the duplication of effort. While the capacity building institutions must independently decide on the type of activities they provide, the activities must be based on what the countries need and can provide. At the moment, many national and regional organisations provide training activities, which are based on the different priorities. It is obvious that the capacity building institutions must constantly review their programmes to ensure that their courses meet the needs of Pacific countries.

IPMEN must continue to address the wide range of issues that confront Pacific countries. It must continue to provide the conduit between the scientific research as well as the needs of local communities. This is important because ocean resources management is about people and how they continually need to organise their use of marine resources to ensure sustainability. This relation is continually in a state of flux, which must be reflected in the training and education programmes. The community based approach is an interesting example where research and the organisation of human activities are simultaneously addressed in the coastal communities that are working to better manage their inshore fisheries resources. The results have indicated an effective system of managing resources that is used now in Fiji and other Pacific Islands (Veitayaki et al. 2002, 2003).

Some of the factors that are important in the ability to address capacity building priorities and needs in the Pacific are: human resources, finances and facilities. Highly qualified tertiary level teachers, trainers and researchers are still in short supply in the Pacific Islands in the areas of Fish Statistics; Taxonomy; Fisheries Biologists; Marine Geology; Fisheries Economists; Ocean Law and Policy. Moreover, there is a dearth of trained individuals capable of delivering the kinds of advanced courses and sophisticated research programmes needed in the region. This is why IPMEN must be supported and strengthened because the linkages that IPMEN has forged provide welcomed opportunities in all the areas of capacity building in the marine sector.

## The International Pacific Marine Educators Network

IPMEN is a developing collective of marine educators throughout the Pacific. The creation of this group began with a two day meeting on the Hawaiian island of Maui in July 2005 and gained considerable momentum at a second international meeting, also in Hawaii, in January 2007. This second meeting, called IPMEC, brought together 100 educators from 18 Pacific nations and territories and resulted in the formation of IPMEN.

By piloting a cooperative network of Pacific marine educators, IPMEN is seen as a first step towards the goal of establishing a worldwide marine educators network. Such a worldwide network would aim to share knowledge, expertise and resources to solve ocean related environmental issues.

## Program

Thursday October 16<sup>th</sup>

Delegates arrive in Townsville and register

4.00 pm to 6.00 pm Registration open at Jupiters (conference venue)

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### DAY ONE: Friday October 17<sup>th</sup>

#### Key notes and concurrent sessions.

8.00 am to 8.30 am Registration

8.30 am to 9.00 am Opening Ceremony

9.00 am to 10.00 am **Keynotes – Strand 1** – Education for Ocean Literacy

- **Craig Strang**, Center for Ocean Sciences Education Excellence – California (USA)
- **Russell Butler**, aboriginal elder, Sea Country specialist (Australia)

10.00 am to 10.30 am **Morning break**

10.30 am to 12.35 pm **Concurrent sessions (2 hours) – Strand 1**

12.35 pm to 1.30 pm **Lunch** at conference venue

1.30 pm to 2.30 pm **Keynotes – Strand 2** - Current Action on Sustainability Education in the Pacific

- **Stephen Hammond**, NOAA Office of Ocean Exploration (USA, via web cast)
- **Greg Manning**, Department of the Environment, Water, Heritage & the Arts (Australia)

2.30 pm to 3.00 pm **Afternoon break**

3.00 pm to 5.10pm **Concurrent sessions – Strand 2**

5.10pm to 5.20pm **Day one close-** Housekeeping announcements

7.00pm **Formal IPMEC Opening** function at Jupiters.(Ballroom 1) – Dr Charlie Veron Coral Reef Research and former chief scientist of the Australian Institute of Marine Science (Australia).

**DAY TWO: Saturday October 18<sup>th</sup>**  
**Workshops, key notes and concurrent sessions**

8.00am to 8.15am	Welcome From IPMEN Chair, Ben Namakin
8.15 am to 9.15 am	<b>Keynotes – Strand3- Linking the Pacific</b> <ul style="list-style-type: none"><li>• <b>Sereima Savu</b>, SPREP (Samoa): 2008 Year of the Coral Reef</li><li>• <b>Terii Luciani</b>, Pelagic Fisheries Research Program (New Caladonia)</li></ul>
9.15 am to 9.30 am	<b>Morning break</b>
9.30 am to 11.35 am	<b>Concurrent sessions – (2 hours) Strand 3 and Strand 4</b>
11.35 am to 11.50 am	<b>Morning Break</b>
11.50 am to 12.50 pm	<b>Keynotes – Strand 4</b> Capacity Building - building the network (making it real) <ul style="list-style-type: none"><li>• <b>Joeli Veitayaki</b>, University of the South Pacific (Fiji)</li><li>• <b>Natalie Davey</b>, Saltwater Projects and Pelican Expeditions</li></ul>
12.50 pm to 1.50 pm	<b>Lunch</b> at conference venue
1.50 pm to 5.00 pm	<b>Concurrent sessions – 1 hour Workshops</b>
5.20 pm	<b>Day two close</b>
Evening	Informal <b>Social Function</b>

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## DAY THREE: Sunday 19<sup>th</sup> October

### Building and strengthening the Network- Forum

8.30 am to 9.00 am **Opening session** – Looking at the History of IPMEN

- **Harry Breidahl** (Australia) OOMF (2005)
- **Kitty Simonds** (Hawaii) presenting via web : IPMEC (2007)
- **Ben Namakin** (Kiribati) IPMEN chair: the future of the network

9.00 am to 10.00 am **Day Planning** (one hour)

- **Joeli Veitayaki** (UNIVERSITY OF THE SOUTH PACIFIC Fiji) facilitator

Explanation of how the day will run and expectations

Explain that the outcomes of the day will be to extend the network and we have some actions such as points of contacts etc. as topics that people could potentially chair

10.00 am to 10.20 am **Morning break 1**

10.20 am to 11.20 pm IPMEN working groups meeting 1

#### Change over time of working groups

11.20 am to 12.20 pm IPMEN working groups meeting 2

12.20 pm to 12.50 pm **Reporting session** (1/2 hour)– chair of each discussion reports back to the whole group

12.50 pm to 1.50 pm **Lunch** at conference venue

1.50 pm to 2.50 pm IPMEN working groups meeting 3

2.50 pm to 3.20 pm **Reports** (1/2 hour)

3.20 pm to 4.20 pm **Action groups** (1 hour)

4.20 pm to 5.00 pm **Conclusion and Conference close**

6.00 pm **Joint IYCC & IPMEN Function with indigenous theme at Reef HQ**

## IPMEN'08 Organising Committee

**Dr. Kristina Bishop** (Potomac Falls, Virginia USA)

College of Exploration

Tina is a founder, Academic Director, and Financial Officer of the College of Exploration (Virginia USA). She has studied Psychology, Educational Measurement and Statistics and has an MBA and an EdD in Higher Education Administration from Virginia Tech. She spent over 15 years assessing K-12 students and has also run a small business. She has extensive experience working with NOAA, Department of Defense Dependents' Schools, National Geographic, the Center for Ocean Leadership, National Science Foundation's Centers for Ocean Sciences Education Excellence (COSEE), USC Sea Grant, and many other partners to implement online professional development programs and to conduct educational research and program evaluation. A major focus has been on developing collaborative learning communities for educators that provide online interactions with scientists. Tina was born near the sea in Point Pleasant, New Jersey and spent every summer exploring the beach. She enjoys international collaboration, diverse cultures, and working with young people. She encourages cross-discipline study of the oceans seeking ways to incorporate art, music, history, geography, and literature in the study of science.



**Harry Breidahl** (Australia)

Nautilus Educational

Harry has worked in Australia for 30 years in marine education as a secondary school teacher and university lecturer, author and researcher. He was a founding member of both the Marine Education Society of Australia (MESA) and the Victorian Association for Environmental Education (VAEE). His work as an environmental educator has inspired change to thousands, if not hundreds of thousands of people in Australia and around the world. Harry has been a prominent community member, assisting environmental community groups and giving prodigious amounts of personal time for sustainability outcomes along the Victorian coast, most recently at Point Nepean. As a fiercely active advocate for marine education and conservation, Harry has, often without pay, donated long hours to continuing the development of regional, national and international networks of marine educators. One result of this international collaboration has been the formation of IPMEN.



### **Scott Carley (USA)**

College of Exploration

Dr. J. Scott Carley is an environmental educator/consultant, systems ecologist and knowledge architect with over twenty-five years of experience in developing computer- and Internet-based systems that support collaborative learning and strategic planning. After post-graduate work in theoretical chemical physics and philosophy of science at the Universities of Waterloo and Western Ontario (respectively) in Canada, Dr. Carley joined the innovative Institute of Resource Ecology at the University of British Columbia (UBC) to investigate how non-equilibrium thermodynamics and risk assessment and management could be applied to the modeling and management of renewable natural resources (esp., wildlife, fisheries, forests). Following a move to Seattle, USA in 1990, he spent two years in local government working on the development and implementation of environmental policies associated with regional/urban planning and growth management efforts. In the last decade he has focused on environmental education, first with the UBC Distance Education and Technology unit (that funded the first version of WebCT) and then with the College of Exploration (Virginia, USA). His current interests center on how to use web/mobile educational technologies and blended onsite and online activities to support science, technology, engineering and mathematics (STEM) literacy in learners and citizens of all ages.



### **Amber Hansen (Australia)**

Amber is a resident of Townsville and has strong interests in the marine environment. She graduated from James Cook University with a Bachelor of Science majoring in Marine Biology in 2001 and then went on to complete a Master of Environmental Management at UNSW in 2003. Amber has worked as the coastal and marine coordinator for the Burdekin Dry Tropics and associated sub-regional groups in the Lower Burdekin assisting community groups with environmental issues. She has also been involved with the Townsville Local Marine Advisory Committee since 2004 and is presently the secretary. In 2003 Amber completed a research project at the Melbourne Museum which identified a new species of sea star (*Coscinasterias* sp.) (unpublished). More recently she has become involved with the Cultural Heritage field and graduated in April 2008 with a Master of Cultural Heritage from Deakin University. This interest took her to Kakadu National Park in 2007 as part of a Sharing our Heritages Masterclass (funded by DEST), which was a collaboration between five Australian Universities and three European Universities. Amber has also been involved with the North Queensland Branch of Australian Marine Sciences Association.



**Luis Antonio Pinto** (Concepción, Chile)

[AquaSendas](#) and [Centro COPAS](#), Universidad de Concepción, Concepción.

Luis, an independent aquatic environmental educator and oceanographer, is currently the Education and Public Outreach Coordinator of COPAS, the Center for Oceanographic Research in the eastern South Pacific at Universidad de Concepcion (UDEC). He volunteers the same position at AquaSendas, a non-for-profit local community organization he created in 2004 to increase awareness and social responsibility for the conservation of aquatic environments in Chile. He is a Fulbrighter holding a MSc and PhD in oceanography from Oregon State University and currently is a part-time marine researcher at UDEC. His research interest is on the carbon cycle in the fjords of southern Chile. While doing a postdoc at University of Alaska Fairbanks (UAF) in 1993 he collaborated as the EE Coordinator for the Math/Science Upward Bound program. Back in Chile he decided to spend most of his time in outdoor education creating several succesful aquatic EE programs such as “eduFiordos”, “Aqua chilensis”, “School on board” and “Drifting with Argo buoys”.



**Ben Mikaere Namakin** (Pohnpei)

Conservation Society of Pohnpei

Ben was born in 1980 in Kiribati and then moved in 1996 with his family to Pohnpei, Federated States of Micronesia. After graduating, he began working with the Conservation Society of Pohnpei as an environmental educator. Ben’s work reached a world audience when his footage showing sea level rise, coastal erosion and other changes on island systems was shown by Greenpeace International in a presentation during the United Nations 2005 Climate Change Conference COP11 /MOP1 in Montreal, Canada. Ben was then selected as the only Pacific Islander to join the Beyond Kyoto/It's Us! Youth Summit and Youth Delegation to COP11 /MOP1. At this summit, Ben participated in making the International Youth Declaration entitled: "Our Climate, Our Challenge, Our Future." He was also one of the five youth speakers who addressed the 10,000 delegates in the plenary to reduce greenhouse gas emissions on the final day of the COP11 /MOP1 meeting. Ben continues to collaborate with the Beyond Kyoto youth to share information on possible actions to stop climate change, research climate change impacts in the Pacific and raise awareness of the issue. He will also chair the first IPMEN committee.



**Sylvia Spalding** (Hawaii, USA)

Western Pacific Regional Fishery Management Council, NMEA Oceania

Sylvia Spalding has 25 years of experience using journalism and education to promote fisheries and marine conservation. She is currently media and education specialist for the Western Pacific Regional Fishery Management Council and OCEANIA chapter representative for the National Marine Educators Association. Her prior work includes communications director for the Marine Aquarium Council, publication specialist for the University of Hawaii, media and publication specialist for the Pacific Business Center Program, editor for the Pelagic Fisheries Research Program and Hawaii Fishing News, and administrative assistant for the Fisheries Training Project at the South Pacific Commission (now, Secretariat of the Pacific Community). She has been a college writing instructor, substitute teacher for the Hawaii Department of Education and instructor of literacy in the workplace. She enjoys surfing, sailing and diving; is a former US Coast Guard licensed skipper and charter boat owner; and has lived and worked on islands throughout the Pacific.



**Craig Strang** (Berkeley, California, USA)

Lawrence Hall of Science, University of California, Berkeley; COSEE California

Craig Strang is Associate Director of Lawrence Hall of Science (LHS) at the University of California, Berkeley. Strang is founding Director of MARE: Marine Activities, Resources & Education, a K-8 interdisciplinary professional development and curriculum development program focused specifically on implementing schoolwide marine science programs that increase learning and language acquisition for English Language Learners. He is the lead Principle Investigator of the multi-institution, NSF-funded Center for Ocean Sciences Education Excellence--California. He has co-led the Ocean Literacy Campaign since 2003 resulting in the development of Ocean Literacy: The Essential Principles of Ocean Sciences Grades K-12. He is co-author of three multi-volume sets of science & environmental education curriculum materials for grades K-8: Proyecto SOL: Science Oriented Learning, Project OCEAN and MARE. He is a co-author of three teacher guides published by the LHS Great Explorations in Math and Science (GEMS) program: On Sandy Shores, Ocean Currents and Only One Ocean.

**Peter Tuddenham** (Potomac Falls, Virginia USA)

College of Exploration



Peter Tuddenham is a corporate and educational manager. Since 1991 he has been working with colleagues and partners to build the College of Exploration as a new way of learning and living. For the past 10 years has been developing internet and human networks that facilitate learning about the oceans. Recent activities have included the facilitation of the Ocean Literacy definition and agreements about essential principles and key concepts. He currently serves as Chair of the International Committee for the US National Marine Educators Association. His love of the sea started as a child at the south coast of England sailing the English Channel. He has had an eclectic career. After 5 years service as an officer in the British Army's Royal Engineers, he developed interests in systems thinking, cybernetics, computers and distance learning as a student at the UK Open University. He has worked in business in human resources, strategy, communication and PR for a variety of US businesses. For 5 years he was a research systems scientist in a 5 year project for the US Army serving as guest faculty at the US Army War College.

**Andrew Vance** (Australia)

Marine Educators Society of Australasia (MESA)



Andrew is a passionate environmentalist and educator. He is currently the Victorian Representative of MESA and a full time Secondary School Teacher. In his spare time he works as a diver at the Melbourne Aquarium literally talking underwater, educating the public about marine issues. Andrew is a founding member of IPMEN, participating in the One Ocean Marine Forum in MAUI in 2006. In 2007 he attended the International Pacific Marine Educators Conference (IPMEC) in Honolulu and is co-Chair of the 2008 IPMEN Conference organising committee. After completing a Science Degree with Honours in Zoology in 2001 Andrew worked as a scientist for two years before discovering his passion for interpretation while working as an education officer at the Melbourne Aquarium. After completing a Diploma of Education in 2004 he is working in his ideal field as a Biology teacher engaging youth with the diversity of our natural world. He is also a current member of the International youth Coastal Conference Steering Committee and a regular contributor to the Out of the Blue Radio program on 3CR Community Radio.

**Ron Vave** (Suva, Fiji)

[University of the South Pacific \(USP\)](#)



Ron Vave is an MSc graduate in marine biology and has been working with the Institute of Applied Science (IAS) Environment unit, at the University of the South Pacific (USP) in Fiji, for the past 10 years. The IAS Environment unit through participatory learning, works with local communities, government departments, NGOs to blend traditional and scientific knowledge, with the ultimate goal of helping local communities attain a high level of awareness and practicality on the sustainable use and management of marine resources. Ron, through the IAS/USP, is a member of the Locally Managed Marine Area (LMMA) network, which works in the Asia-Pacific region, empowering villagers in addressing natural and anthropogenic threats to their marine resources, by building capacity in grassroot folks to identify problems causing marine resource depletion, find solutions, implement and through simple monitoring, assess the effectiveness of their management action.

**Peter Wood** (Cairns, Australia)

PhD Candidate



Peter has a Masters Degree in Tourism and a Graduate Certificate in Tropical Wildlife Management. He has 14 years experience working with Geographic Information Systems. This includes stints at the Great Barrier Reef Marine Park Authority and the Wet Tropics Management Authority. Peter is presently a PhD candidate at the James Cook University researching marine research tourism. Marine research tourism is marine tourism where marine research is an important part of the tourist attraction. This PhD thesis aims to evaluate if marine research tourism can be notably expanded across Australia. This research includes discussions and surveys with key stakeholders across Australia. Research outcomes should include further understanding marine research tourism, and how marine research tourism can be better organised. Peter is longer term resident of Northern Queensland including three years in Townsville and six years in Cairns.

## Keynote Speakers

### Russell Butler

Girringun is the name of an ancestral creator who determined the marriage and hunting lore of Warangnu, Jirrbal, Warrgamay and Girramay peoples. These people maintain a strong connection with country. Russel Butler is an Aboriginal elder of the Bandjin (Salt water People). The Bandjin are one of nine language groups who make up the tribal groups that are the traditional owners of the land and sea country between modern Cairns and Townsville.



Russell has worked with the Girringun Aboriginal corporation Pursue and work toward social outcomes that enhance Traditional Owners' quality of life and building strong and healthy communities by family support, child safety and protection and positive youth development. He is the possessor of a great wealth of traditional knowledge and has worked with government and peak fishery bodies to establish the first Traditional Use Marine Resources Area or TUMRA.

### Natalie Davey

Natalie Davey is director and one of the founders of Saltwater Projects and Pelican Expeditions. She has been actively interested and involved in multidisciplinary projects in the Arts/ Science domain for the last 10 years. After receiving a Fine Arts degree at the Slade in London, working as an artist and teaching English in Germany for a number of years, she returned to Australia to pursue her interests in Community projects. This led to becoming involved in the building of Pelican1, a 63 foot ocean going Catamaran, and working on projects that combine her passions for the environment, Arts and social justice. Her 6 yr old daughter, Aurora, is fast learning the ropes and made her first Bass Strait crossing with the Pelican crew this year.



Her presentation will chart some of the work that Pelican Expeditions has been doing over the last 4 years, particularly focusing on the work with the Hope Vale community in Far North Queensland. The Hope Vale project works with the richness of connection, history and knowledge of the Traditional Owners to Sea Country, by providing the vessel Pelican1 to visit Traditional lands (incl Lizard Island) that have often been inaccessible to them. A camp is set up on the beach at the remote location of Cape Flattery, and Pelican1 is used to allow both Elders and youth to travel together on Sea Country and visit Traditional lands that have not been visited by most in the Community for a very long time. These direct experiences are linked with scientific modes of understanding the marine environment, such as water quality monitoring and turtle tagging. This work creates a vibrant exchange and also provides Elders with a platform to motivate and connect with their Aboriginal youth.

Along the way it allows all participants to realise the importance of Caring for Sea Country and to gain inspiration from time actually spent on Sea Country.

## Dr. Stephen R. Hammond

Dr. Stephen R. Hammond is the Acting Director of the National Oceanic and Atmospheric Administration's (NOAA's) Ocean Exploration and Research Program and Division Leader for the Ocean Environment Research Division of NOAA's Pacific Marine Environmental Laboratory. He has also served as Chief Scientist for the Ocean Exploration Program.

The Ocean Exploration and Research Program is a unique program devoted to gaining knowledge about the Earth's still vastly unknown ocean. NOAA has recently commissioned the

NOAA Ship Okeanos Explorer, a ship solely dedicated to ocean exploration and which will communicate its expeditions and discoveries through real-time, high-definition video.

Dr. Hammond has a PhD. in marine geophysics and has been involved in marine geophysics and submarine volcanic and hydrothermal research for more than 40 years. He has also led the NOAA Vents ocean exploration program for more than 25 years. During that time that program's interdisciplinary teams of oceanographers have made many discoveries which have brought to light dramatic global ocean ecosystem impacts of submarine volcanic activity.

In the course of this work, Dr. Hammond secured the ongoing use of the US Navy's Sound Surveillance System (SOSUS), which has made it possible to detect and locate previously unsuspected deep volcanic eruptions.

Dr. Hammond received his B.S. from the University of Missouri at Kansas City and his M.S. and PhD. from the University of Hawaii. He lives in Newport, Oregon.



## Teriihauroa LUCIANI

Terii Luciani is from French Polynesia and holds a degree in biological science with a major in aquaculture. Terii began working in fisheries in 1990 at the IFREMER-COP Aquaculture Research facility in Tahiti where he worked on prawn and finfish farming and pearl culture.

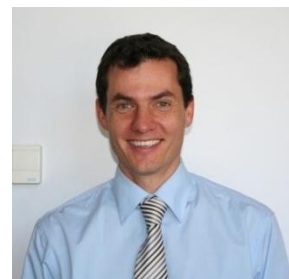
In 1992, Terii moved to the private sector where for three years he was responsible for the management and implementation of prawn farm projects in Fiji Islands. After returning to the Fisheries Department in French Polynesia, Terii worked as the department's Black Pearl Information and Training Specialist. Terii joined SPC in 1997, first as Fisheries Information and Training Associate, then as Fisheries Training Specialist, and was subsequently appointed Fisheries Training Adviser in 2006.



His main tasks are to identify fisheries training needs, plan and coordinate training programmes for the private and public sectors in Pacific Island countries and territories, and implement in-country and regional fisheries training course and workshops.

## Greg Manning

Gregory Manning has responsibility in the Australian Government Department of the Environment, Water, Heritage and the Arts for developing and implementing national policy in relation to sustainability. He is a member of the National Council on Education for Sustainability, Chair of the National Education for Sustainability Network and its Australian Sustainable Schools Initiative working group.



For the last six years Greg has been responsible for implementation of Australia's first National Action Plan for Environmental Education and strategy for the United Nations Decade of Education for Sustainability. He has also lead the development of the first ever National Environmental Education Statement for Australian Schools and national adoption of the Australian Sustainable Schools Initiative. Other significant projects include establishment of the Australian Research Institute in Education for Sustainability and more recently work to develop a new National Action Plan for Education for Sustainability.

## Sereima Savu



Sereima Savu is the coordinator of the 2008 Pacific Year of the Reef (PYOR08) campaign run by the Secretariat of the Pacific Regional Environment Programme (SPREP) and supported by the Coral Reef Initiatives for the Pacific programme and other partner organisations. SPREP's membership and the PYOR08 campaign cover 21 Pacific island countries and territories, as well as Australia and New Zealand.

## Craig Strang

Lawrence Hall of Science, University of California, Berkeley; COSEE California

Craig Strang is Associate Director of Lawrence Hall of Science (LHS) at the University of California, Berkeley. Strang is founding Director of MARE: Marine Activities, Resources & Education, a K-8 interdisciplinary professional development and curriculum development program focused specifically on implementing schoolwide marine science programs that increase learning and language acquisition for English Language Learners. He is the lead Principle Investigator of the multi-institution, NSF-funded Center for Ocean Sciences Education Excellence--California. He has co-led the Ocean Literacy Campaign since 2003 resulting in the development of Ocean Literacy: The Essential Principles of Ocean Sciences Grades K-12. He is co-author of three multi-volume sets of science & environmental education curriculum materials for grades K-8: Proyecto SOL: Science Oriented Learning, Project OCEAN and MARE. He is a co-author of three teacher guides published by the LHS Great Explorations in Math and Science (GEMS) program: On Sandy Shores, Ocean Currents and Only One Ocean.

## Kitty Simonds

Kitty M. Simonds has served more than 20 years as the executive director of the Western Pacific Regional Fishery Management Council. She joined the Council following a 13-year career as an aide to U.S. Senator Hiram L. Fong. Under her watch, the Council has set the pace for innovative marine resource management with its pioneer regulations on controversial gear, observer programs, vessel monitoring systems, and the nation's first ecosystem-based management plan.



## Joeli Veitayaki

Joeli Veitayaki is an Associate Professor at the School of Marine Studies, and the Associate Dean (Academic) at the Faculty of Islands and Oceans at the University of the South Pacific (USP). Joeli is also the Director of the International Ocean Institute-Pacific Islands. He is from Fiji. Joeli has a background in human geography. He was a teacher before he joined what was the Department of Geography at USP and later the Marine Studies Programme. Joeli's research interests are in human ecology particularly the use and management of coastal resources. His MA research was with village-level fisheries where the focus was to promote the plight of this misunderstood sector. Joeli's PhD research was on the reasons for the poor performance of fisheries development projects. Joeli collaborates with others at USP as well as outside to promote the involvement of as many communities as possible in the effective management of their environmental (including) resources and to encourage the articulation of sustainable development throughout the different communities in the Pacific. Joeli has published widely and in the areas of customary marine tenure, capacity building, marine resources management and regional cooperation. He is currently writing a book on rural development and fisheries development projects.



## Dr. J. E. N. 'Charlie' Veron

"Charlie" Veron has worked on all the major coral reef regions of the world and has over 100 research publications including 12 books and monographs on corals and coral reefs. He is also the principle scientist of Coral ID and Coral Geographic which, respectively, are electronic products of taxonomy and biogeography with global coverage. The latter has underpinned virtually all major conservation initiatives of Indo-Pacific reefs made over the past decade. His work has led to widely accepted evolutionary concepts of marine life and to the palaeontological record (Family Tree) of corals. He is author of the three-volume *Corals of the World*. He is former Chief Scientist of AIMS and now has his own organisation, Coral Reef Research as well as several adjunct positions. He has many professional awards including the Darwin Medal (International Coral Reef Society), the Silver Jubilee Pin (Australian Marine Sciences Association), the Australasian Science Prize, the Whitley Medal and received special mention in the Eureka Awards. Veron's latest book, *A Reef in Time: the Great Barrier Reef from Beginning to End* (Harvard University Press, 2008), distils the world's best science for general readers, following the GBR from its earliest origins, to current issues, to future prognoses.



## Key note abstracts

### Stand 1 – Education for Ocean Literacy

**Dr Craig Strang, Centres for Ocean Sciences Education Excellence (COSEE) - California and Lawrence Hall of Science (University of Berkeley) (USA)**

Ocean sciences in the US are idiosyncratically absent from National Science Education Standards, state standards, curriculum and assessments. Ocean concepts are hardly taught in K-12 schools, resulting in a decline in public attention to ocean issues. COSEE, NGS, NMEA, NOAA, USCOP, the Pew Commission have urgently called for inclusion of the ocean in science standards to increase ocean literacy. There has never been consensus, however, about what ocean literacy is or what concepts should be included in future standards. Scientists and educators had no guidance in prioritizing the content they present or in determining how it fits into an over-stuffed American science curriculum famous for being “a mile wide and an inch deep.” In 2004, 100 scientists and educators participated in an on-line workshop, “Ocean Literacy Through Science Standards,” to determine the essential information everyone should know about the ocean. Following several more meetings and extensive scientific and public review, the community agreed on an Ocean Literacy definition, seven essential principles, and 44 supporting concepts. The overwhelming acceptance and quick, far reaching use of resulting documents is a tribute to the inclusiveness of the development process. In 2006, we began development of an “Ocean Literacy Scope & Sequence.” It shows how the principles and concepts build in developmentally sound learning progressions across grade spans K-2, 3-5, 6-8, 9-12, and guides teachers, curriculum developers, scientists as to what concepts are appropriate at various grades.

Achieving consensus about what should be taught resulted in nationwide attention, unprecedented momentum for Ocean Literacy, and provided common language for scientists and educators working together. It has not, however, been considered what changes might be necessary to adapt the ocean literacy definition for other Pacific countries.

### **Russell Butler, aboriginal elder, Sea Country specialist (Australia).**

Russell is an elder from the Bandjin people. The Bandjin means salt water people. Ten thousand years ago the Bandjin roamed the plains of the Herbert River where the Great Barrier Reef now lies hunting Eastern Grey Kangaroos and avoiding Salt water Crocs. As the climate warmed and Sea levels rose the Bandjin adjusted to a new way of life on the sea, but still kept their knowledge of the fresh water springs that exist to this day under specific places all along the reef. The Bandjin elders pass on stories to members of the community via traditional methods and through the development of community projects as part of the Giringun Aboriginal corporation. Since its establishment in 1996, Giringun has made an extensive contribution to government, non-government and community groups. Some of its achievements include the building of an interpretive centre and memorial at the Hull River Aboriginal Settlement site at Mission Beach, establishment and development of the Regional Aboriginal Language Management Committee (RALMC), and the establishment of an Indigenous Saltwater Ranger Unit (CIRU) through partnerships with GBRMPA (Great Barrier Reef Marine Park Authority) and QPWS (Queensland Parks and Wildlife Service) based in Cardwell. The completion and opening of our whole of community Education, Training and Cultural Centre (skills centre) built on Giringun’s land occurred in 2004 and since then an Aboriginal Keeping Place and Museum has been incorporated, which is open to the public and used as a venue for teaching youth about cultural issues and language. The Giringun established Australia’s first TUMRA (Traditional Use Marine Resources Agreement), which is a formal agreement between Saltwater Traditional Owners, GBRMPA and QPWS and details how collectively Traditional Owners manage traditional take of turtles and dugong.

## **Stand 2 Current Action on Sustainability Education in the Pacific**

**Greg Manning, Department of the Environment, Water, Heritage & the Arts (Australia)**

The importance of education in general to the overall well-being and prosperity of any society is well recognised. The principles and practical application of education for sustainability are less well-understood but in recent years have been recognised internationally as fundamentally important to addressing the critical global challenges we face. Through information sharing and awareness raising, but more importantly by building people's capacity and motivation to innovate and implement solutions, education for sustainability is essential to re-orienting the way we live and work and to becoming a more sustainable society. Government's around the world have a vital role to play in supporting change through education for sustainability. This presentation will explore the Australian Government's approach in this area and its links to the broader activities of the region.

## **Deep Ocean Exploration: New Discoveries and Implications For A Warming Planet**

**Dr Stephen Hammond, NOAA Office of Ocean Exploration (USA)**

Stephen will be presenting via the web.

The fact that the Earth is in a period of rapid global environmental change elevates the urgency for discovering and understanding what this change means in terms of the way the ocean, and the life within it, is impacted and reacts. Ocean acidification provides a real and dramatic means for illustrating how the discovery of active new sources for CO<sub>2</sub> in the ocean will help ocean scientists understand the marine budgets and cycles of this greenhouse gas as well as offering them a practical means to understand how ocean ecosystems may respond to increasing ocean acidity.

The Ocean Exploration program is increasing its capabilities for making and understanding such discoveries by bringing on line a dedicated exploration ship, the Okeanos Explorer. Live, broadband Internet 2 links to the ship will provide a new means for informing and entraining ocean researchers, educators, and the general public.

## **The plight of The Great Barrier Reef**

**Dr J.E.N. "Charlie" Veron**

Coral reefs as we know them have been in existence for hundreds of millions of years, through times of spectacular growth and dramatic extinctions. Being at the whim of environmental upheavals, reefs are Nature's historians. In this role they reveal a history that is about to take a turn so immediate that it will be witnessed in a single lifetime.

Anthropogenic carbon dioxide is increasing so abruptly that it is now causing fatal mass bleaching of corals worldwide and is set to trigger global mass extinctions through ocean acidification. The rate at which this is happening has no precedent in all Earth history. Coral reef and climate science combine to reveal a path towards the next great mass extinction, a catastrophe for all life, terrestrial as well as marine. Conserving what we have has become the greatest of all challenges to face humanity. Our knowledge of climate change, unlike that of any other facet of human endeavour, comes entirely from science. In broad terms however, science has had its say: the baton has been passed to communicators and educators. This talk covers the issues: what science has said and what the options for the future are.

## Stand 3- Linking the Pacific

### Strong youth, stronger islands

#### **Sereima Savu, South Pacific Regional Environmental Programme (SPREP) (Samoa)**

Environmental education and communication work in Pacific island countries and territories by the Secretariat of the Pacific Regional Environment Programme has been delivered with the primary goal of prompting behaviour change. Communication campaigns of various types have been used to promote specific messages and target particular audiences to this end.

The 2008 Pacific Year of the Reef (PYOR) campaign takes advantage of a growing international movement to publicise the urgency of coral reef conservation. With a Stand of “strong reefs, strong islands,” the PYOR campaign builds upon the solid foundation of awareness raised during the 1997 Pacific Year of the Coral Reef.

Activities of the Pacific regional campaign have focused on advocacy among policy makers, supporting coral reef managers, engaging youth, and training media. To reach these audiences, the campaign has utilized existing local networks in the Pacific as well as forging new ones throughout the region.

#### **Teriihauroa Luciani, Pelagic Fisheries Research Program (New Caledonia).**

The Secretariat of the Pacific Community’s (SPC) fisheries programmes provide scientific support and monitoring for the region’s tuna fisheries, and research, technical assistance and training for sustainable management and exploitation of coastal fisheries and aquaculture. Food security is a focus of SPC’s work in all these areas. Pacific Island countries and territories are experiencing rapid population growth, rural-urban migration, and demand for better livelihoods. The region is also increasingly affected by climate change. To help ensure food security for present and future generations, SPC’s work in the region’s fisheries sector includes analysis of future prospects for meeting food security needs through fish, policy advice based on that analysis, and assistance in adapting to climate change, for example, by assessing and managing the productivity of coastal fisheries resources and supporting aquaculture development. The challenge is to ensure that rural and urban Pacific populations continue to have access to fish for food.

## Stand 4 Capacity Building- building the network (making it real)

### Building Capacity in Indigenous Knowledge to Manage Marine Resources: the issues to be addressed

#### **Joeli Veitayaki, University of the South Pacific (Fiji)**

Indigenous knowledge of resource management is widely used throughout the world. In the Pacific Islands, people are studying it and are incorporating it into contemporary resource management arrangement. Its use has quickly resulted in the success of community-based management systems in some areas and can be treated as the alternative to ineffective management systems in others. The problem is to figure out the situation where it works and those where it does not and to highlight the lessons to be learned from its availability and use.

In addition, there is the challenge to figure out how people who have indigenous resource management philosophies and strategies can be involved in the design of contemporary management practices. This means that indigenous management needs to be made appropriate to suit existing situations.

The pertinent issues to be addressed include the need to understand the complex interrelation between people and their ecosystems, the capacity building rights of indigenous resource owners under contemporary statutory management arrangements, the nature of the activities allowed in the managed area, consultation of and the involvement of indigenous communities, getting people to be committed to the initiatives and the points of disagreement between customary and contemporary arrangements and expectations. The aim in this presentation is to explore these issues using case studies and experiences from Fiji and the Pacific Islands and suggest ways of addressing them to allow the meaningful use of traditional management practices in the caring of the marine environment in existing societies now and into the future.

## **Old Ways New Ways – Adventures in Capacity Building**

### **Natalie Davey Saltwater Projects and Pelican Expeditions.**

This paper will focus on the work of Pelican Expeditions along the East Coast of Australia. Our work is powerfully motivated by the belief that good science, inspiration and being in the elements, in this case, the marine environment, is the best way to cultivate a shared sense of knowledge and belonging. These vital experiences are crucial not only in our understanding of the marine world but also cultivate a connectiveness to the marine world, which we hope, in our small way, to help foster people's desire to protect and celebrate the oceans upon which we depend.

Often our projects are an interesting mixture of Science and community engagement. This involves data collection and community engagement in the science, by either direct interaction with scientists on the boat or shared through media of all varieties, including importantly the Web. We also work with Indigenous communities and I will be speaking in particular about our work with the community of Hope Vale in Far North Queensland. The project grew from an initial response to a cry for help from an Aboriginal woman who was despairing at the suicide rate in her community. We are now in our 5th year working there and by the time I give this talk we will have completed a whole month of activities based in and around Cape Flattery. All the activities are developed in consultation with Elders, who direct the project together with our team. This year we are aiming to activate and bring into focus the Sea Country plans, while being on Sea Country. The Hope Vale youngsters will be involved in activities such as Following Ancestral journeys, through kayak trips from the Pelican, turtle tagging, monitoring estuarine health and water quality and listening and sharing stories with their Elders. We are also running a Digital Story telling program to enable the youth to capture stories, events and adventures that happen on Sea Country so that these will then be a personal record of their journeys. All these stories will be owned by the Community and will be archived as part of a Community Knowledge project. I will also talk about some of the work we have done in Victoria, which looks at linking Cultural Mapping with scientific data collection. We are also planning a journey to link the traditional cultures of Vanuatu and the Indigenous people of Western Victoria by following and attempting to understand the still very mysterious short fin eel migration, which happens annually in the Autumn.

## TIME / DATE DIFFERENCES FROM TOWNSVILLE

### *SAME DAY*

-3 hours (+7UTC)

Cambodia, Indonesia (Java, Sumatra-Jakarta), Laos, Russia, Thailand, Vietnam

-2 hours (+8UTC)

Australia (Western), Brunei, China (Beijing, Shanghai), Hong Kong, Indonesia (Bali, Borneo, Celebes), Macau, Malaysia, Philippines, Taiwan, Singapore, Russia

-1 hour (+9UTC)

East Timor, Indonesia (Iran Jaya, Moluccas), Japan, Korea, Palau, Russia

-30 minutes (+930UTC)

Australia (Northern Territory, South Australia)

Ground Zero (+10UTC)

Australia (Queensland, Sydney, Canberra, Melbourne), Papua New Guinea, Yap, Chuuk, Guam, Northern Mariana Islands, Russia

+ 1 hour (+11UTC)

New Caledonia, Vanuatu, Solomon Islands, Pohnpei, Kosrae, Russia

+1 hour 30 minutes (+1130UTC)

Norfolk Island

+ 2 hours (+12UTC)

New Zealand, Fiji, Wallis & Futuna, Kiribati (Tarawa, Gilbert Islands), Tuvalu, Nauru, Marshall Islands, Antarctica

+ 3 hours (+13UTC)

Kiribati (Rawaki, Phoenix Islands), Tonga

+4 hours (+14UTC)

Kiribati (Christmas Island, Line Islands)

### *ONE DAY BEHIND*

+ 3 hours (-11UTC)

Niue, Samoa, American Samoa, Midway Island

+4 hours (-10UTC)

Cook Islands, Tokelau, French Polynesia, Hawaii, Aleutian Islands

+4 hours and 30 minutes (-930UTC)

Marquesas Islands

+5 hours (-9UTC)

Gambier Islands, Alaska

+ 6 hours (-8UTC)

Pitcairn Island, Canada (British Columbia), United States (West Coast), Mexico (Baja California Norte)

+ 7 hours (-7UTC)

Mexico (Baja California Sur)

+ 8 hours (-6UTC)

Easter Island, Costa Rica, Galabagos Islands, Guatemala, Honduras, Mexico, Nicaragua

+ 9 hours (-5UTC)

Ecuador, Colombia, Peru, US East Coast

+10 hours (-4UTC)

Chile

## Abstracts

Listed in alphabetical order of presenting author's surname

### **“Tail Slapping Global Action”**

Workshop Presentation

Tony Bartram

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Kangaroo Island Dolphin Watch perfectly blends major elements of IPMEC themes, with elders and youth working together equally for the common cause of conservation and protection of cetaceans and their marine habitat. School students are reengaged in education through collecting data which is valued by Scientists globally. The benefit of rediscovering their affinity for the natural world and reattachment to it, akin to indigenous cultures' sense of place and belonging, is vitally important with current “doom and gloom” scenarios, which disempower youth and elders alike.

Working alongside Scientists, communicating globally via simple, inexpensive, cutting-edge technologies, people of all ages come to understand that they too can be “scientists”, contributing data regarding the state of the marine environment, thus actively increasing their “ocean literacy” while building their capacity to contribute to the care and sustainability of the seas which link us – a powerful, readily achievable global model for caring through experience.

### **On the Seashores of Endless Worlds**

Ms Angela Colliver

[Angela.Colliver@environment.gov.au](mailto:Angela.Colliver@environment.gov.au)

This workshop will look at ways that educators can use climate change, education for sustainability and international understanding to help their students build bridges to other people and other countries, and get involved and think about how to tackle climate change and how to protect and conserve our resources – individually, in our homes, at school and in our communities.

Participants will be encouraged to share ideas that they know of that promote sustainable living and education for international understanding.

### **Society United for the Sea**

Ms Margarita Diaz

[margarita@proyecto Fronterizo.org.mx](mailto:margarita@proyecto Fronterizo.org.mx)

For 8 years, PFEA has coordinated a community volunteer project named “Salvemos la Playa” in a coastal community in Tijuana, Baja California, Mexico. This project implements 2 yearly beach cleanup campaigns that has involved a total of 4,800 people and remove 22,000 kg of debris from this beach. The greatest accomplishment has been getting so many residents to recognize the value of a healthy beach and begin taking an active role in conserving it.

This collective effort involves close to 30 organizations and has youth as its driving force, convinced that, as the main users of the beaches, they need to become empowered to take action in this issue. The goal is to achieve a balance between population growth and conservation of our beaches, based on a joint action strategy that integrates citizen water quality monitoring activities, environmental education program for proper waste reduction and disposal, and citizen patrol.

## **Building literacy through ocean literacy**

Dr Kanesa Duncan

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Recent discussions of ocean literacy have focused on the importance of teaching ocean core concepts to build ocean literacy, however our research indicates that ocean literacy can be more effectively communicated within a broader pedagogical framework. An ocean literate person is not only scientifically literate but also socially and culturally literate. Important tools for students' understanding of general scientific as well as ocean-related issues include aspects of visual, language and cultural literacy. This presentation will highlight ways to incorporate various facets of literacy into ocean literacy curriculum. Showcased activities are aligned with the Ocean Literacy Essential Principles and Fundamental Concepts. These activities emphasize 1) reading and writing skills, 2) visual and creative arts, and 3) cultural literacy and societal perspective. This innovative way of viewing ocean literacy is well grounded in education research and has the potential for broadening the appeal and the impact of ocean literacy building efforts.

## **Motivation towards safeguarding our Marine Environment**

Web - based presentation- Kiribati

Mrs Taati Eria

[taati.ecd@melad.gov.ki](mailto:taati.ecd@melad.gov.ki)

I-Kiribati people always known as the people from the sea. With our lack of resources, the marine environment have been treasured as our main provider and source of livelihood. Impacts to our marine environment now facing the challenges of today. As the rising tide, the existence of low lying atolls has been endangered and we are faced with the challenge in addressing marine environment conservation as a barrier from stormy waves. Raising awareness and community motivation must be achieved towards safeguarding our marine environment.

## **Preliminary Findings on the Impacts of Environmental Education on the Livelihood of Coastal Communities in Fiji**

Web based presentation - WITHDRAWN

Mr Patrick Fong

[fong\\_pa@usp.ac.fj](mailto:fong_pa@usp.ac.fj)

Environmental education and awareness raising have been part of community-based marine resource management programs in Fiji for the past decades. The impacts of these on the way local people perceived the ocean and the environment as a whole and also, on their attitudes towards the use of these resources are still not well understood. This study examines the impacts of these programs on the livelihood of coastal communities in some communities in Fiji. It also aims to identify the critical determining factors that have contributed to the achievement of these impacts.

Preliminary findings confirm that these conservation programs through environmental education and capacity building have provided more positive socioeconomic and governance impacts to the local communities and these include health standard, income, governance structure and social relations. Also, some critical determining factors such as the existence of a legal framework that supports such initiatives, workable social structure and institutional collaboration have been

identified. The lessons learned from these programs through the results of the study can provide useful ideas on ways to improve marine education which can be adopted to boost effective conservation practices in the region.

## **Linking Ra'ui (Traditional Resources Management) and Western Scientific Knowledge**

Ms Sylvia George

[sgeorge@wwfcooks.org.ck](mailto:sgeorge@wwfcooks.org.ck)

Ra'ui is a traditional Cook Islands practice of protecting the land and the sea for food security. It is also used as a way of controlling the harvest of natural resources so as to allow stocks to replenish in Ra'ui sites.

Raui is therefore a traditional knowledge (TK) that is embedded in the cultural experiences of each local community in the Cook Islands. It involves intangible factors such as their beliefs, perspectives and value systems. It is also based on scientific arguments; e.g. the 'Arapo' (phases of the moon) were used to forecast the best times for fishing and/or planting and which species are ripe for harvesting or not based on their reproduction cycles.

Western Scientific Knowledge (WSK) is continuously adding to our understanding of the resources we manage; however that knowledge cannot be singled out alone without the input of the local communities. Therefore, to sustain resources management in local communities, strengthening of existing conservation systems such as the Ra'ui which adapts to the needs of the times and incorporates both traditional and scientific truths would also serve to empower communities and enhance sustainable development principles.

## **Change strategies for water quality improvement in an urban GBR catchment**

Dr Margaret Gooch

[Margaret.Gooch@jcu.edu.au](mailto:Margaret.Gooch@jcu.edu.au)

Currently, a number of Queensland water quality improvement plans are being developed to operationalise the Great Barrier Reef Marine Park Authority's Reef Water Quality Protection Plan. The Black Ross Water Quality Improvement Plan (BRWQIP) is being prepared for the Townsville area. This paper describes two Community Based Social Marketing (CBSM) strategies to be implemented as part of the delivery of the BRWQIP. CBSM goes beyond traditional information campaigns, as it includes mechanisms for adaptation, monitoring and evaluation. The first strategy is a butt-littering campaign targeting smokers. Litter was identified in a survey of Townsville residents as being a major contributor to waterway pollution, and something that respondents were willing and able to do something about. The second is a sediment reduction campaign targeting the building industry. Increased sediment load in local waterways was identified in a survey of Townsville scientists, planners and experts as a major contributor to waterway pollution.

## **Education for a sustainable aquatic environment in Western Australia**

Mr Michael Burgess

[Michael.Burgess@fish.wa.gov.au](mailto:Michael.Burgess@fish.wa.gov.au)

Fisheries management in Western Australia has been undergoing a major focal shift over the past 5 years towards a more ecosystem-based regime - a major step forward from the management of fisheries of individual species in separate commercial and recreational sectors.

These changes in management regimes have also seen a change in the direction of education strategies used to foster social attitudinal and behavioural change. In the past, education has been largely targeted at the fishing sectors – with a focus on communication to encourage conformity with sustainable fishing practices. Now, in order to reflect the shift in management, the Department’s education programs have been expanded to target the wider community and the formal education system, incorporating a focus on the science behind fisheries management. These science ‘snippets’ have become the foundations of our education programs.

The challenge is to deliver in-depth and technical education messages to the community. This presentation outlines the elements of these education programs and their impacts.

## **‘It’s like shooting fish in a barrel’: Marine education and community engagement success stories from New South Wales, Australia**

Mr Brian Hughes

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Education and community engagement are often key management actions to minimise human impacts in the marine environment. The success of education and community engagement projects has been enhanced by linking directly with marine science programs. For example, scientists undertaking a biodiversity assessment of intertidal rocky shores on the Central Coast of NSW involved community volunteers in the collection of data on four species of molluscs. Several projects in the Hunter-Central Rivers CMA region have improved the links between scientists, various levels of government, community and local businesses. Notably, corporate sponsorship from the Crowne Plaza Hotel at Terrigal, NSW has been attracted for marine education, monitoring and research. The Hunter-Central Rivers CMA runs a highly successful program of marine science presentations titled the Marine Discovery Series. The series provides an opportunity for marine scientists to communicate with a broad spectrum of the community and promote special features of their local marine environment.

## **The Indo Pacific Coral Finder - an easy-to-use underwater coral identification and capacity building tool.**

Mr Russell Kelley

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The IPCF is a visual decision tool, which solves the problem of learning and teaching the basics of coral taxonomy. The IPCF improves the accuracy and reliability of coral identification in teaching, research, monitoring and compliance.

Despite a comprehensive taxonomic framework, coral identification remains difficult to learn and master. The ability of corals to change form with environment overwhelms learners such that the uptake of genus-level coral taxonomy by divers across the Indo Pacific has been poor. The IPCF reduces the problem of “what coral is that” to a series of simple visual choices that work underwater, anywhere in the Indo Pacific. Importantly, it cross-references back into the formal taxonomic framework for post-dive learning.

The IPCF uses form and texture to resolve 65 coral genera, regardless of growth form, and can be used effectively by novices with little training. Results of testing and guidelines for the development of visual decision tools are presented.

## **Triple P Marine Education: A Best Practice Guideline**

Workshop Presentation

Ms Kathleen Kilgour

[kate@greynurseguardians.com.au](mailto:kate@greynurseguardians.com.au)

This simple and easily-remembered initiative puts marine educators on the path to positive outcomes for the marine environment. We all have the will, and we now have a simple and effective way to facilitate behavioural changes to conserve marine environments:

**PERSONAL** – Utilising a number of steps, development of a personal rapport with the ocean is critical if participants are to make changes to their lives to conserve marine environments.

**POSITIVE** – This step uses examples to highlight the importance of moving away from negatives, and motivating participants with positive experiences.

**PERMANENT** – Program outcomes must be durable and permanent. The health of the marine environment necessitates changes which far outlive the duration of the program. Here, I provide educators with steps to facilitate permanent behavioural changes among participants.

## **Tokyo Univ. of Marine Sci., Tech. Start Aquatic, marine environmental literacy program**

Poster presentation

Mr Tatusya Kitami, Mr Taku Manabe\*, Dr Tsuyoshi Sasaki

c/o- [t-sasaki@kaiyodai.ac.jp](mailto:t-sasaki@kaiyodai.ac.jp)

\*Presenting author

Morret Fish Educational Program now conducted in Tokyo Bay area as one of the Aquatic and Marine Environmental education to promote the AMEL (Aquatic, Marine Environment Literacy) and ESD (Education for Sustainable Development) in the Tokyo Bay Area. By using this program, participants will be able to understand the life cycle of morret fish and ecosystem of Tokyo Bay, and enhance the consciousness of environment and marine creature.

## **Motivational approaches in ocean sciences education**

Dr Judith Lemus

[jlemus@hawaii.edu](mailto:jlemus@hawaii.edu)

This presentation will discuss the motivational approaches used in two educational programs designed to engage underrepresented and underserved students, as well as those that may be otherwise disenfranchised from science and/or science careers. Using students' love of the ocean to make science more approachable, relevant and fun, each program seeks to prepare students for higher education and active civic participation by fostering inquiry, ocean stewardship, creativity, and leadership skills. Teams of students work together to create and teach a new marine lesson, plan, and develop and lead a community service project. Some of the motivational strategies incorporated into these programs that will be highlighted include student ownership and choice, cooperative and team learning, real-world/relevant experiences, creative freedom, community connectivity, and including multiple intelligences. Preliminary evaluation data indicate that this type of flexible and learner-driven approach is an effective model for engaging diverse and underrepresented students in ocean sciences and stewardship.

## **Tokyo Univ. of Marine Sci., Tech. Start Aquatic, marine environmental literacy program**

Poster presentation

Mr Taku Manabe and Dr Tsuyoshi Sasaki

[t-sasaki@kaiyodai.ac.jp](mailto:t-sasaki@kaiyodai.ac.jp)

Smelt Fishing Management Educational Program now conducted in Iwate Prefecture as one of the Aquatic and Marine Environmental education to promote AMEL (Aquatic, Marine Environment Literacy) and ESD (Education for Sustainable Development) in the regional area. By using this program, participants will be able to understand the life cycle of smelt fish and ecosystem of region area, and enhance the consciousness of environment, marine creature.

## **Youth Involvement in Community Adaptive Management: a worthwhile approach to resource management in Fiji**

Mr Semisis Meo

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Conservation initiatives by the Locally Managed Marine Areas (LMMA) Network in the Asia Pacific region manifest a recognition of the importance of involving local communities completely, especially indigenous populations, in sustainable management of marine resources. The Fiji node of LMMA after working through more than 200 communities have digested a wealth of lessons and experiences that neighbouring island countries have utilised to promote resource management at the community level.

This paper is a case study in one of the established project sites Navakavu that aims to streamline resource conservation goals and efforts into youth development programs at the project level. It fosters integration of internal community stakeholders for equality and fairness in their efforts to implement effective and efficient actions. The social, economic, cultural, political and demographic structure of a community is preserved. Essentially this initiative enhances transferring of traditional and scientific knowledge and information for the implementation into the future.

## **Possible content and exercises for Pacific Island undergraduate or senior Marine Science Courses**

Mr Bob Moffat

[bhoffatt@wetpaper.com.au](mailto:bhoffatt@wetpaper.com.au)

This paper will outline content for a possible Marine Science Textbook for South Pacific Students in the fields of Oceanography, Marine Biology, Management and Conservation. It will draw on experiences from Senior Marine Studies classes in Australia who study Marine Studies for University entry in Queensland, New South Wales and Western Australia. Examples of exercises using national literacy standards will be presented as well as examples of laboratory and field work. Reference will be made to the Marine Teachers Association of Queensland where members can access a curriculum exchange of ideas for examination papers and classroom activities.

## **Designing exercises and selecting marine science content for Pacific Island undergraduate or senior marine science students**

Mr Bob Moffat

[bhoffatt@wetpaper.com.au](mailto:bhoffatt@wetpaper.com.au)

In 2002 Professor Leon Zann, Bob Moffatt and Tim Ryan co authored a Marine Science Textbook which has become the standard text for Marine Science in Australian High Schools wishing to undertake tertiary studies. In 2004 Prof Zann used the textbook in the University of the South Pacific as a basis for an Undergraduate Unit in the University of the South Pacific. This paper will outline possible content and learning activities for South Pacific Students. The workshop will ask South Pacific delegates to review this content, provide feedback and suggest authors and curriculum writers for a possible South Pacific Version of the textbook.

## **Climate impacts on the Great Barrier Reef: using the Reef to teach about climate change Workshop presentation**

Ms Katie Munkres

Climate change is recognized as the greatest long-term threat to coral reefs. Because coral reefs are iconic ecosystems, are particularly at risk from climate change and display highly visible climate impacts due to relatively small increases in sea temperatures, they are an ideal model to use when teaching about the impacts climate change will have on the environment. The Great Barrier Reef Marine Park Authority has conducted an assessment of the Reef's vulnerability to climate change. This workshop will provide an overview of the predicted impacts of climate change on the Reef. The Authority has also worked closely with schools to develop a suite of educational resources for teachers. This workshop will present a solution-based approach to teaching about climate impacts, using the Great Barrier Reef as a case study. Workshop attendees will acquire new ideas for teaching about climate change and will take an active role in critiquing/assisting with the development of educational resources which will ultimately be made available to conference attendees.

## **Bring the Ocean into Your Classrooms with National Marine Sanctuaries**

Ms Seaberry Nachbar

[Seaberry.nachbar@noaa.gov](mailto:Seaberry.nachbar@noaa.gov)

The National Oceanic and Atmospheric Administration's (NOAA) National Marine Sanctuary (NMS) Program serves as the trustee for a system of fourteen marine protected areas, encompassing more than 150,000 square miles of America's ocean and Great Lakes. The NMS Education Program inspires ocean literacy and stewardship of the national marine sanctuaries through engaging online resources such as the Encyclopedia of the Sanctuaries, an Ocean Media Library and cutting-edge technology educational offerings such as OceansLive, an initiative that integrates real-time and near real-time video camera feeds with diverse oceanographic data streams. Learn about new, free electronic resources to bring the ocean directly into your classroom. Standards-based lesson plans align to all the technologically innovative resources to enhance student learning and increase ocean literacy in America's classrooms. Come find out more and pick up some free educational materials!

## **Marine Environments and its sustainability. What primary school children in Lombok Island Indonesia know about it.**

Ms Hani Nusantari

[divaazka@yahoo.com](mailto:divaazka@yahoo.com)

Seagrass beds, mangrove forests and coral reefs support coastal communities by providing resources such as food and income to coastal communities. For many years, marine environments have been facing destruction the majority of which is caused by human impact. The lack of knowledge of how to use and manage the marine resources wisely and sustainably is one reason why marine environments are still facing degradation.

Primary school children who live in two coastal villages in Lombok Island, Indonesia were questioned about their conceptual understanding of their local marine environments and their ideas about sustainability in these environments. The finding shows that children's experiences in their marine environment appear to have strong connection with their knowledge. Their knowledge develops from interaction with the people in the communities as they are not taught environmental education in school. The children's education about marine conservation should not only be formal, in school, but informal, in the communities.

## **The Ocean Literacy Program for the fjord region in Chile**

Dr Luis Pinto

[luispinto2000@hotmail.com](mailto:luispinto2000@hotmail.com)

In 2008, the Center for Oceanographic Research in the eastern South Pacific (COPAS), Universidad de Concepcion, launched its Development Plan, Oceanographic Applications for the Sustainable Economic Development of the Southern Region of Chile. The program links scientific and technological research to the sustainable economic development of Chile's southern zone, which is of strategic importance as an aquatic ecosystem and complex hydric system, particularly vulnerable to climate change and anthropogenic influence from projected intensive use such as aquaculture, mining, and energy. The Plan concentrates on oceanographic monitoring and prediction, aquaculture, and scientific tourism. Major efforts will be focused in two fjords and the Baker Basin coastal marine system (~ 47° S).

The Outreach Program contemplates the execution of experimental activities with teachers and students based on such important topics for the region as red tides, global change, fjords and aquaculture, including workshops and the presence of marine science teachers from overseas

## Initial steps for the Latin-American Coastal Educators Network

Dr Luis Pinto

[luispinto2000@hotmail.com](mailto:luispinto2000@hotmail.com)

Almost 50% of the total Latin-American population lives less than 100 km from the coast. However, there is no marine education curricula associated to any of the Education systems among the researched countries. Marine resources such as fisheries and shellfish are being rapidly depleted due to heavy exploitation and the presence of polluted waters in our coasts.

During the 2006 Meeting of Water Explorers in Dichato, Chile, a task force was formed to contact interested science teachers from Latin America to establish communication, share ideas and resources about our coastal regions. That is how the Latin-American Coastal Educators Network (REdCoL) was born. Initially two non-for-profit community organizations from Chile and Argentina joined efforts to establish a basic and common marine education program. Currently, the network has slowly grown to have representatives from Colombia, Peru, Cuba and Uruguay.

## An environmental education program for visually impaired adolescents in Chile

Dr Luis Pinto

[luispinto2000@hotmail.com](mailto:luispinto2000@hotmail.com)

An innovative environmental education program for visually impaired adolescents was developed by the Marine Research Program of Excellence from Universidad de Concepcion, Chile with funds from Empresa Arauco, one of the largest forestry enterprises in Latin America and COALIVI (Corporation for the Visually Impaired). A hands-on, inquiry-guided and multisensorial approach was developed to have an active participation of the students on each step of the learning process. Field activities were designed for direct participation of the students in the elaboration of integrated ecological concepts such as zonation using a tidepool for this purpose and later creating their own intertidal rock. The students had the opportunity to do bathymetric studies in a local bay on board a small vessel with a manual sounder built by themselves. Improvement in their school performance, interest for science and strengthening of self-esteem were some of the goals achieved by the students.

<http://www.arauco.cl/noticias.asp?idq=744>

## Reviving a culture of biodiversity conservation

Mr Alfred Ralifo

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LäjeRotuma a community-based environmental initiative recognises the use and conservation of biodiversity as an integral part of Rotuman culture-traditional practices that cannot be separated from its ethical, aesthetic values or from its socio economic reality. Rotuma is a 43 square kilometre island geographically isolated from the rest of the main Fiji Group with oceanic conditions creating a distinct range of habitats and species with high endemism and uniqueness. However, shift in value and use of natural resources accelerates the loss of Rotuman traditional knowledge and practices important to biodiversity conservation, yet, proves opportune to explore the linkages of conservation value in local customary practices for natural resources management and mainstreaming marine science education.

The Rotuma schools EcoCamp is a culmination from the "Adopt-a-habitat" outreach program in partnership with the four primary schools (age level 6-11 years) on the island, aimed at enhancing young minds' learning about their natural environment in an easily accessible and safe environment. The long-term benefit of changing the attitude of a generation bound to be the future leadership of

Rotuma by providing opportunity to learn more about their natural environment through creativity and innovative tools with the partnering of a group of elders as story-tellers.

## **Sustaining the Pacific: Learning from Elders, Listening to Youth: A Case Study of Nanumea Island Community, Tuvalu**

Mr Alan Resture

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Traditional and cultural factors play a central role in the successful management of coastal areas. The cultural values of Tuvalu will shape the boundaries of a coastal program, often long before notions of the exact details of the program design have been considered. The application of indigenous knowledge for the sustainable management of natural resources is a factor that has now been realised as the way forward. Its integration into contemporary management practices has been considered by the elders and the active members of rural communities of Nanumea in Tuvalu as the best form of adaptation given the adverse effects of climate change. While indigenous knowledge has eroded rapidly, the communities realise that its resurrection is an essential component of maintaining sustainable livelihoods for the communities.

This paper highlights the importance of culture in shaping management strategies for sustaining the community of Nanumea in years to come. It is a case study of a community in Tuvalu that has embarked on promoting and incorporating traditional practices into managing their limited terrestrial and marine resources. The paper concludes with some recommendations on how other communities may benefit from such practices.

## **Building Stewardship for Marine Protected Areas through Education**

Mr Mark Rodrigue

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Education is critical for the development of awareness attitudes and action needed to engage communities in stewardship for the world's marine protected areas. This presentation will provide an overview of approaches developed by Parks Victoria in building community capacity for protecting the states Marine National Parks system, and identify further opportunities for Pacific partnerships in marine protected area education.

## **Tokyo Univ. of Marine Sci., Tech. Start Aquatic, marine environmental literacy program**

Dr Tsuyoshi Sasaki

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Tokyo Univ. of Marine Sci., Tech. (TUMSAT) start Aquatic, marine environmental literacy (AMEL) educational promoting program from last year. The ultimate purpose of this program is to ameliorate public to have AMEL to construct sustainable society. To achieve the purpose, our university train students as to become AMEL educational promoting leader by this new program. This program consists of not only existing subjects for ocean technical specialist training, but also 4 new subjects for AMEL promoting leader training. The new subjects are the Fundamental of AMEL (FAMEL), AMEL Field Training, AMEL Communication, AMEL Communication for Consensus Building. FAMEL is basic subject for promoting AMEL. FAMEL consists of 8 categories in which are What is FAMEL? , Aquatic Marine Environmental (AME) and Society, AME and Environment, AME Ecosystem, AME resources, Coast and our life, at the moment and the future of AME.

## **Trading Polar Bears for Coconut Crabs - Adding Value and Meaning to Biodiversity Education in the South Pacific: a Case Study**

Mr Fremden Shadrack

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Education for Biodiversity Conservation (EBC) aimed to strengthen the capacity of formal education to support implementation of the UN Convention on Biological Diversity in the South Pacific through curriculum strengthening, development of educational resources and professional development of teachers and educators.

Biodiversity conservation necessitates more than just consideration of the science behind it (ecology and biology): biodiversity is intimately linked to community health, culture, economic prosperity and spirituality.

Constraints in the South Pacific education systems made application of an Education for Sustainability approach difficult: education being generally 'teacher-centered' and focused on memorizing information. These methods limit children's opportunities to learn and apply their learning in the context of local community.

We examine how the EBC project enhanced the connection between school and community life, providing opportunities for students to see how biodiversity directly affects their lives, thus adding value and meaning. The paper suggests how lessons learned are also relevant in developed countries.

## **Building a Marine Conservation Ethic: One Kid at a Time**

Mr Joel Simonetti & Mrs Lisa Cook

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Over the last decade globalization has altered the school landscape in East Asia in ways that make it easier for educators to help some children think critically about the oceans' value and its plight. Dozens of K-12 private, international schools using western, inquiry-based, pedagogy have opened in the region's major cities. Common curriculum design and teaching practices at these institutions make it possible to design resources and units that can be used in every nation from Japan south to Indonesia. Each year thousands of international school graduates count themselves among the dynamic young adults who energize East Asia's communities. By nurturing in these future business, government and community leaders an awareness of the oceans' limits, we help them see the connections between marine ecosystems, biodiversity and the quality of human life and help them grow into adults who can integrate complex information about marine ecosystems into their decision-making.

## Ocean Literacy, Traditional Knowledge and the Case for Cultural Consultation in the Pacific

Web based presentation from Hawaii

Ms. Sylvia Spalding & Mr Charlie Kaaiaia

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The Western Pacific Regional Fishery Management Council has been involved in a variety of efforts to elevate awareness, appreciation and use of traditional knowledge at the local, national and regional level. This work has involved partnerships with educators and traditional practitioners from the US continent, Native American nations and tribes, and the Pacific islands. It provides the groundwork for developing an Ocean Literacy (OL) Traditional Knowledge supplement in the United States as well as insights for addressing OL at a regional level in the Pacific. Moreover, it suggests that more benefit might come from developing formal consultation processes with traditional practitioners rather than attempting to appropriate this knowledge and teach it to others. The latter presumes that traditional knowledge and the learning of it can be separated from experience, practices, lifestyle and cultural perspectives of and relationships with the world.

### From a Youth Perspective: The Econesian Society and its ability to contribute towards a sustainable environment in the Pacific

Ms Tammy Tabbe

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The need to address increasing environmental issues that we are facing today has increased over the years as a result of rapid population growth and depletion of natural resources. Countries, governments, Non-governmental organisations (NGOs), institutions are taking actions and implementing plans aimed to achieve a sustainable environment. In reality, most of these actions and plans are employed by these bodies.

Youths in this case often lack the ability to be involved in such activities. Yet they are key people who need to be educated on such issues and be engaged in projects that aim to enhance sustainable resource uses and environment. The Econesian Society has taken a step as an independent USP student body environment focus group comprising of student members from different countries around the Pacific studying at USP to become involved in such matters. The society aims to expose future environmental leaders to skills and knowledge that will make them better informed in decision-making for the future environments of their communities. With less than 30 active members, the society tries to provide these students opportunities to learn about environmental issues and how they can contribute as youths by involving them in various activities organised by environmental bodies in USP and outside of USP. The group has also been engaged in promoting environmental awareness of major issues that we are facing today through singing. Our songs have inspired many environmentalists and even students and as a society we have identified singing as an activity to promote environmental awareness.

Youth groups such as this can be established in various schools and institutions. There is a lot of potential in youths to become environmentalists and engage in activities and promote awareness focused on environmental sustainability. Youths are influential and are able to influence other youths and students through the activities they engage in.

## Youths towards a sustainable environment

Workshop

Ms Tammy Tabe

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The destruction and depletion of our environment and its resources have alarmed many national governments and environmental bodies to take action. Youths are often regarded as key people to affect changes being young, energetic and active; however they play minor roles in these changes and sometimes are a part of the problem rather than the solution stemming from a lack of awareness and ignorance.

It is important, however that youth groups in these situations are encouraged, morally supported and guided by the proper authorities in their activities. This will enable them to develop skills that will allow them to implement and conduct future projects and activities on their own. To do this we must first begin with baby steps and work towards a higher environmental goal for a more sustainable and cleaner future.

The workshop will involve group discussions focusing on the following;

- The main hindrances of youths in becoming engaged in activities that promote a sustainable environment
- How can these hindrances be overcome? and
- The different activities and projects that would involve youths to contribute towards a sustainable environment.

## Voices of the Bay

Mrs Lisa Uttal

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The mission for *Voices of the Bay* Education Program is to use local fisheries, fishing communities and their rich maritime history and culture as a focal point for students to learn about the marine environment, the ecological and human dimensions of marine resource use, and its management.

*Voices of the Bay* exposes students to the rich fishing history of the Monterey Bay area by direct transfer of knowledge from fishing and fisheries community members to students. The central goal of the project is to develop place-based curriculum, lesson plans and activities for schools that use local fishing harbors and fishermen as a context for learning.

## **Community Messaging in the EBM Macuata network of communities.**

Ms Akisi Vakamaiverata

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Communities reminisce about the changes in the ecosystem; let it be the abundance of fish or its smaller fish size or the decline in the integrity of the habitat. This paper describes WWF experiences from the Ecosystem-Based Management project community at Macuata which aligns with the theme of “Sustaining the Pacific: Learning from elders, listening to youth”. The facilitated process of awareness-education via the community messaging approach aims at propelling knowledge transfers and information exchange; allows the voices of all community members to be heard without overstepping boundaries of Fijian customary protocol. Learning from elders and addressing the concerns of youth has been adopted in Macuata to facilitate better resource management by all thus indirectly influencing decision-making. There is no defined meaning of the concept of community messaging; aid tool for the transfer of knowledge from the elders to the younger generation. In the process, and exchange of information is generated, and conservation actions taken. This concept is effective in Macuata Province where is complemented with opportunity to tracing historical use of natural resources. Traditional knowledge combined with scientific findings is perhaps a way forward for community-based conservation effort in Fiji.

## **ReefBase Pacific Portal to Ocean Literacy**

Ms Asenaca D. Valemei

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The ReefBase Pacific project has increased accessibility and availability of information to support the development of knowledge and informed decisions in relation to reef resources in the Pacific. This presentation will detail the ways in which the project has provided tools for education for ocean literacy through web-based, DVD and printed products to an audience of scientists, managers, students and communities in the Pacific. The development of a ‘Pacific Virtual Marine Education Resource Center’ will be discussed and demonstrated. Discussed will be certain project that have made a direct impact on marine education in the region such as the delivery of interactive research activities that develop computer-based research skills and marine education concurrently. An innovative use of computers and the internet to communicate broadly messages from Pacific communities will also be demonstrated.

## **Can the ocean survive us? Can we survive the ocean? (The Law of the Sea)**

Dr John Walsh of Brannagh

[www.econorfolk.nf](http://www.econorfolk.nf)

The discussion will focus on what we are putting into the ocean with particular reference to practices on Norfolk Island and the lessons to be learned for other Pacific nations. The ocean has been a friend to us but friends are to be respected. The presentation will cover past, present and (hopefully) future environmental practices

## **Parents and Children Learning and Engaging in Environmental Stewardship Together!**

Ms Lynn Whitley

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“Learning from Elders – Listening to Youth” is an important concept and one that is supported by enhanced communication and relationship building between parents and children. The University of Southern California Parent Child Education Program (PCEP) is aimed at making basic marine science concepts approachable and fun for parent and child together (and in some cases grandparents and grandchildren!) as it fosters open communication and creative expression through positive action. Through the innovative PCEP learning process parent-child teams engage in a hands-on marine science curriculum that leads to an increased regard and sense of responsibility relating to local (and global) environmental issues and sustainability. Parent-child teams also learn about each other via coordinated life and learning skills activities. A marine related field trip precedes the mini-symposium/awards night in which learning, food, culture, and excitement of achievement are all shared (including a career component). This model created in Southern California can easily be adapted to coral and coral reef communities.

## **The preferences of potential marine research tourists for different marine research tourism products in Australia**

Mr Peter Wood

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Marine research tourism is a form of marine tourism whereby marine research is an important part of the tourism attraction. Research was undertaken to further understand the preferences of potential marine research tourists for different marine research tourism products and benefits. Such information can be used to identify suitable markets, develop effective promotional campaigns, and design effective and different products. An online survey (n=311) and benefit segmentation approach was used.

Results indicate that potential marine research tourists who regularly watch nature documentaries, volunteer, are a member of a conservation group, have a natural sciences background, SCUBA dive, snorkel or cetacean watch, have notably higher interest in more marine research tourism products. The most important benefits for survey respondents were the opportunity to explore marine phenomena and discover new things, and learn from marine researchers. The least important benefits for survey respondents were an offshore boating or sailing experience and a high level of social interaction with others.